

REMARKS

This paper is responsive to a Non-Final Office Action dated January 20, 2006. Claims 1-22 and 42-42 were examined. Claims 1-5, 7-16, 18, 20-22, 24-42 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,888,771 to Hush et al. Claims 6, 17, and 19 are objected to as being dependent upon a rejected base claim.

*Claim Rejections Under 35 U.S.C. §102*

Claims 1-5, 7-16, 18, 20-22, 24-42 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,888,771 to Hush et al. (hereinafter, "Hush"). Regarding claim 1, Applicants respectfully maintain that Hush, alone or in combination with other references of record, fails to teach or suggest

a test block configured to characterize in situ a sensing offset of a sensing circuit including a cross-coupled pair of transistors,

as required by claim 1. The Office Action relies on Hush to supply this teaching. Hush teaches that

[a] variable resistance memory sense amplifier has a built-in offset to assist in switching the sense amplifier when a resistive memory cell is in a low resistance state. The built-in offset can be achieved by varying size, threshold voltage, associated capacity or associated resistance of the transistors within the sense amplifier.

(Abstract, emphasis added) The offset of the memory sense amplifier of Hush is intentionally unbalanced by fabrication techniques. Col. 2, lines 6-20; col. 4, lines 9-16. Nowhere does Hush teach or suggest characterizing the offset of the cross-coupled pair of transistors in the memory sense amplifier of Hush. Instead, Hush teaches using the memory sense amplifier to detect two voltage states of the resistive memory cell in the presence of a defective reference memory cell. Col. 1, lines 11-30; col. 3, lines 25-52. These two voltage states of the resistive memory cell of Hush are not sensing offsets, as claimed. In addition, Hush fails to teach or suggest that the resistive memory cells include a cross-coupled pair of transistors, as claimed. For at least these reasons, Applicants respectfully maintain that claim 1 distinguishes over Hush and all references

of record. Accordingly, Applicants respectfully request that the rejection of claim 1 and all claims dependent thereon, be withdrawn.

Regarding claim 5, Applicants respectfully maintain that Hush, alone or in combination with other references of record, fails to teach or suggest that

the sensing offset results, at least in part, from an accumulated data-dependent mismatch in characteristics of the cross-coupled transistors,

as required by claim 5. As described above, the offset of the memory sense amplifier of Hush is intentionally unbalanced by fabrication techniques. Col. 2, lines 6-20; col. 4, lines 9-16.

Nowhere does Hush, alone or in combination with other references of record teach or suggest that the offset of the memory sense amplifier results from an accumulated data-dependent mismatch in characteristics of the cross-coupled transistors, as claimed and described in the specification at least in paragraph 1019. For at least this reason, Applicants respectfully maintain that claim 5 distinguishes over Hush and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 5 and all claims dependent thereon, be withdrawn.

Regarding claim 8, Applicants respectfully maintain that Hush, alone or in combination with other references of record, fails to teach or suggest

at least a first and a second discharge path coupled to at least one of the respective first and second plurality of ports, the effective strengths of the first and second discharge paths determined by respective ones of the first and second plurality of control signals, the first and second discharge paths configurable for characterization of a sensing offset associated with a sensing circuit,

as required by claim 8. Hush teaches that

[a] variable resistance memory sense amplifier has a built-in offset to assist in switching the sense amplifier when a resistive memory cell is in a low resistance

state. The built-in offset can be achieved by varying size, threshold voltage, associated capacity or associated resistance of the transistors within the sense amplifier.

(Abstract, emphasis added) The offset of the memory sense amplifier of Hush is intentionally unbalanced by fabrication techniques. Col. 2, lines 6-20; col. 4, lines 9-16. Nowhere does Hush teach or suggest characterizing the offset of the cross-coupled pair of transistors in the memory sense amplifier of Hush. Instead, Hush teaches using the memory sense amplifier to detect two voltage states of the resistive memory cell in the presence of a defective reference memory cell. Col. 1, lines 11-30; col. 3, lines 25-52. These two voltage states of the resistive memory cell of Hush are not sensing offsets, as claimed. For at least this reason, Applicants respectfully maintain that claim 8 distinguishes over Hush and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 8 and all claims dependent thereon, be withdrawn.

Regarding claim 17, Applicants respectfully maintain that Hush, alone or in combination with other references of record, fails to teach or suggest

additional control signals at least partially compensating for the detected sensing offset by selectively exposing one of the transistors of a sensing circuit to a bias voltage selected to cause a compensating shift in a characteristic of the exposed transistor,

as required by claim 17. As described above, the offset of the memory sense amplifier of Hush is intentionally unbalanced by fabrication techniques. Col. 2, lines 6-20; col. 4, lines 9-16. Nowhere does Hush, alone or in combination with other references of record teach or suggest exposing one of the transistors of a sensing circuit to a bias voltage selected to cause a shift in a characteristic of the exposed transistor to compensate for a detected sensing offset of a sensing circuit. For at least this reason, Applicants respectfully maintain that claim 17 distinguishes over Hush and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 17 and all claims dependent thereon, be withdrawn.

Regarding claim 26, Applicants respectfully maintain that Hush, alone or in combination with other references of record, fails to teach or suggest

detecting in situ a sensing offset in a sensing circuit including a pair of cross-coupled transistors,

as required by claim 26. The Office Action relies on Hush to supply this teaching. Hush teaches that

[a] variable resistance memory sense amplifier has a built-in offset to assist in switching the sense amplifier when a resistive memory cell is in a low resistance state. The built-in offset can be achieved by varying size, threshold voltage, associated capacity or associated resistance of the transistors within the sense amplifier.

(Abstract, emphasis added) The offset of the memory sense amplifier of Hush is intentionally unbalanced by fabrication techniques. Col. 2, lines 6-20; col. 4, lines 9-16. Nowhere does Hush teach or suggest characterizing the offset of the cross-coupled pair of transistors in the memory sense amplifier of Hush. Instead, Hush teaches using the memory sense amplifier to detect two voltage states of the resistive memory cell in the presence of a defective reference memory cell. Col. 1, lines 11-30; col. 3, lines 25-52. These two voltage states of the resistive memory cell of Hush are not sensing offsets, as recited by claim 26. For at least this reason, Applicants respectfully maintain that claim 26 distinguishes over Hush and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 26 and all claims dependent thereon, be withdrawn.

Regarding claim 41, Applicants respectfully maintain that Hush, alone or in combination with other references of record, fails to teach or suggest

means for detecting in situ a sensing offset in a sensing circuit that includes a cross-coupled pair of transistors

as required by claim 41. The Office Action relies on Hush to supply this teaching. Hush teaches that

[a] variable resistance memory sense amplifier has a built-in offset to assist in switching the sense amplifier when a resistive memory cell is in a low resistance state. The built-in offset can be achieved by varying size, threshold voltage, associated capacity or associated resistance of the transistors within the sense amplifier.

(Abstract, emphasis added) The offset of the memory sense amplifier of Hush is intentionally unbalanced by fabrication techniques. Col. 2, lines 6-20; col. 4, lines 9-16. Nowhere does Hush teach or suggest characterizing the offset of the cross-coupled pair of transistors in the memory sense amplifier of Hush. Instead, Hush teaches using the memory sense amplifier to detect two voltage states of the resistive memory cell in the presence of a defective reference memory cell. Col. 1, lines 11-30; col. 3, lines 25-52. These two voltage states of the resistive memory cell of Hush are not sensing offsets, as claimed. In addition, Hush fails to teach or suggest that the resistive memory cells include a cross-coupled pair of transistors, as claimed. For at least these reasons, Applicants respectfully maintain that claim 41 distinguishes over Hush and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 41 and all claims dependent thereon, be withdrawn.

Allowable Subject Matter

Applicants appreciate the indication of allowable subject matter in claims 6, 17, and 19. Applicants believe that claims 6, 17, and 19 are dependent upon allowable claims and are allowable for at least this reason. Although Applicants believe that the claims are allowable over the art of record, the Examiner's Reasons for Allowance do not coincide with the allowable claims. Applicants do not acquiesce in additional limitations included in the Examiner's Statement of Reasons for Allowance.

In summary, claims 1-22 and 42-42 are in the case. All claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless, if any issues remain that could be more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

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Respectfully submitted,



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